# Formation and Characterization of $Al_xMo_{1-x}$/n-InP Alloy Electrode System for Realization of Thermally Stable Ohmic Contacts

Robina Atsuchi, Mayumi B. Takeyama, Atsushi Noya, Tamotsu Hashizume* and Hideki Hasegawa*

*Department of Electrical and Electronic Engineering, Faculty of Engineering, Kitami Institute of Technology, Kitami 090-8507, Japan*
**Research Center for Interface Quantum Electronics and Graduate School of Electronics and Information Engineering, Hokkaido University, Sapporo 060-8628, Japan*
*E-mail: mami@elec.kitami-it.ac.jp, Phone : +81-157-26-9288, Fax : +81-157-25-1087*

**Abstract**

A novel metallization scheme of $Al_{0.9}Mo_{0.1}$/n-InP is demonstrated to serve as a thermally stable ohmic contact. Ohmic behavior was obtained in the as-deposited contact, and the linear I-V characteristic was maintained after annealing at 500 °C for 20s. It was found that the ohmic behavior was related to the diffusion of Al with Mo into the InP substrate, forming Al-Mo-P compounds at the interface. The initially formed interfacial products scarcely change upon annealing. This is considered to be the main reason for the stable electrical properties in the $Al_{0.9}Mo_{0.1}$/InP contact obtained in this study.